

PROJET BONAVENTURE



Bonaventure Project Full Submission

TAC 2018 Sustainable Urban Transportation Award

Montréal 

1) Developing and Improving Sustainable Urban Transportation

The Bonaventure Project is a series of strategic undertakings aimed at providing user-friendly, functional and safe mobility options to all users. The Bonaventure Project Vision includes three main objectives:

- Create a prestigious, functional and user-friendly gateway into the downtown core.
- Facilitate the re-weaving of the urban fabric through the removal of an elevated highway structure in the urban environment.
- Support private sector driven urban development through the implementation of key strategic initiatives in the downtown core.

To achieve these objectives, project authorities focused on the specific nature of the proposed development and the interaction between available modes of transportation in the area. Specific initiatives contributing to the area's development, improvement of sustainable urban transportation and creation of a lively and dynamic local environment include:

- demolition of an 850 m section of highway, replaced with an at-grade urban boulevard;
- implementation of 24-hour bus only lanes to accommodate the daily 1,900 crosstown bus movements along the boulevard and ensure the timely flow of bus traffic;
- implementation of user-friendly and safe bus stations along the boulevard;
- development of wide, linear sidewalks separated from the roadway by rows of trees and street furniture to enhance the pedestrian environment and make it safer;
- installation of push-button activated signalled pedestrian crossings at all intersections;
- development of 1.6 km of new cycling facilities aimed at creating a safer and more user-friendly cycling environment, enhancing the offer of active transportation options and improving access to adjacent neighbourhoods; and
- development of over 24,000 m² of new public open spaces in the downtown core, to meet the needs of area residents and workers.

The replacement of a section of elevated highway by an at-grade urban boulevard will greatly improve traffic flow and safety in the area, especially for pedestrians and cyclists.

In keeping with its goal of optimizing the project's social impact, city authorities have included several features which were identified and requested by local residents. For example, based on the results of consultations with adjacent neighbourhood residents, a new outdoor fitness area and children's playground were added to the final plan. These facilities will play a key role in helping various users adopt these new public spaces.

The project team developed a straightforward and functional concept that will stand the test of time. By implementing strategic undertakings that put public and active transportation at the forefront, this project makes a significant contribution to the advancement of sustainable urban transportation.

2) Degree of Innovation

The Bonaventure Project is characterized by the innovative nature of approaches developed in relation to the interaction between various modes of transportation, the development of public spaces in a downtown setting, the inclusion of public art in major infrastructure projects and project management methods.

Interaction Between Modes of Transportation

The detailed modelling of traffic flows, using PTV Vissim and Aimsun software, played a key role in ensuring the project's technical feasibility by providing the information required to develop the best possible configuration for the main roadway and adjacent city streets to accommodate the intense traffic flow along this axis. Bus-only lanes were built on Bonaventure Boulevard between Duke Street and Nazareth Street. This eliminated problems associated with over 1,900 bus movements crossing this residential area on a daily basis, an issue that had gone unresolved for the last 10 years.

The addition of an intelligent transportation system (ITS) facilitates the coordination of traffic movements, which improves the safety of all users. The ITS system played a major role in resolving signal timing issues for the flow of traffic between the Ville-Marie Freeway off-ramp tunnel and the new at-grade urban boulevard. The following features were implemented to ensure the safe and smooth flow of traffic:

- message boards informing users of the risk of congestion and collisions in the tunnel, beyond the visibility distance;
- automatic surveillance and response to incidents occurring in the tunnel; and
- automatic adjustment of signal timing along the boulevard when congestion occurs in the tunnel.

This was the first implementation of this type of system in the Montreal metropolitan area.

Development of Public Spaces

The analysis work conducted by the multidisciplinary team responsible for implementing this project helped identify a severe lack of public spaces in a radius of 800 m, notably in two up-and-coming neighbourhoods, Faubourg des Récollets and Griffintown. As a result, 24,000 m² of new public open spaces have been added to the downtown core, greatly enhancing the urban experience for a broad range of users. These new features include a linear public bench stretching over six city blocks, 12 permanent lawn chairs, 8 picnic tables, two ping-pong tables, a children's play area, an outdoor fitness area and a dog park.

Public Art

To mark the creation of this distinctive and symbolic urban space, the City placed major works of public art at each end of the boulevard. The north end features a piece entitled *Dendrites* by artist Michel De Broin. This winning entry from a national public art competition bears testimony to the nearby headquarters of the International Civil Aviation Organization, an important United Nations agency. The south end features a piece entitled *Source*, created by the Spanish artist Jaume Plensa. It is a long-term loan from Montreal-based philanthropists, the first of its kind for the city. The national public art competition bears witness to the growing recognition of public art as a key component of

infrastructure projects.

Project Management

Given the complex nature of the project, the project team was called upon to deliver the project on time and on budget while managing a number of risks and unexpected situations. The team implemented a thorough project monitoring system, including, among others, weekly progress meetings. In addition, project management staff conducted frequent site visits to ensure compliance with the original concept, from earliest planning stages to final completion of the construction work.

This intensive monitoring program resulted in various initiatives, including the recycling and re-use of the elevated highway structure. Within the project, 95% of the 47,000 tonnes of concrete from the demolished structure was crushed and reused. The re-use of existing materials generated savings of \$450,000, contributing to the completion of the project within the \$147 million budget. In addition, the city's sustained effort to engage stakeholders throughout the project largely contributed to its success.

3) Transferability to Other Communities and Organizations across Canada

At a time when we are collectively questioning the place of the automobile in the urban environment, Montreal has chosen to demolish a large section of elevated highway in an effort to revitalize and reinvigorate a broad area of its downtown core. This can potentially inspire other Canadian urban centres to undertake similar major projects.

In addition, the instantaneous appropriation of the newly developed public spaces provides a tangible measure of the project's success. As such, the project has offered lessons that could potentially apply to similar projects. These include:

1. Ensuring efficient coordination among stakeholders will help minimize project-related risks and concerns, and makes it easier to take advantage of all possibilities.
2. Providing quality facilities that are in line with user needs will help create functional spaces that will stand the test of time.

3. A well-designed planning phase will help reduce unwanted impacts on adjacent neighbourhoods, in addition to providing better control over costs and deadlines.

4) Added Value

Added value activities include:

- improved integration of regional through traffic on the Bonaventure Freeway and local traffic on adjacent neighbourhood streets;
- unchanged travel times for dozens of crosstown bus routes connecting the South Shore and the downtown core;
- aesthetically pleasing and comfortable wider sidewalks for all user groups;
- creation of 24,000 m² of new public spaces of local and regional interest;
- greening of the area with 300 new trees and 15,000 shrubs and perennials in addition to the reduction of hard surfaces;
- coordination with the provincial government's work on the Turcot Interchange Project and the federal government's work on the Bonaventure Freeway south of the Lachine Canal; and
- active involvement of numerous stakeholders.

PROJET BONAVENTURE



Appendix 1
Project Photos

Montréal 

Legend

Bonaventure 1A: View along Nazareth Street, looking south, 2014

Bonaventure 1B: View along Nazareth Street, looking south, 2017

Bonaventure 2A: View from the Duke Ramp, looking north, 2014

Bonaventure 2B: View from the Duke Ramp, looking north, 2017

All photos are property of the City of Montreal.



Bonaventure 1A: View along Nazareth Street, looking south, 2014



Bonaventure 1B: View along Nazareth Street, looking south, 2017



Bonaventure 2A: View from the Duke Ramp, looking north, 2014



Bonaventure 2B: View from the Duke Ramp, looking north, 2017

PROJET BONAVENTURE



Appendix 2

Project Photos

Montréal 

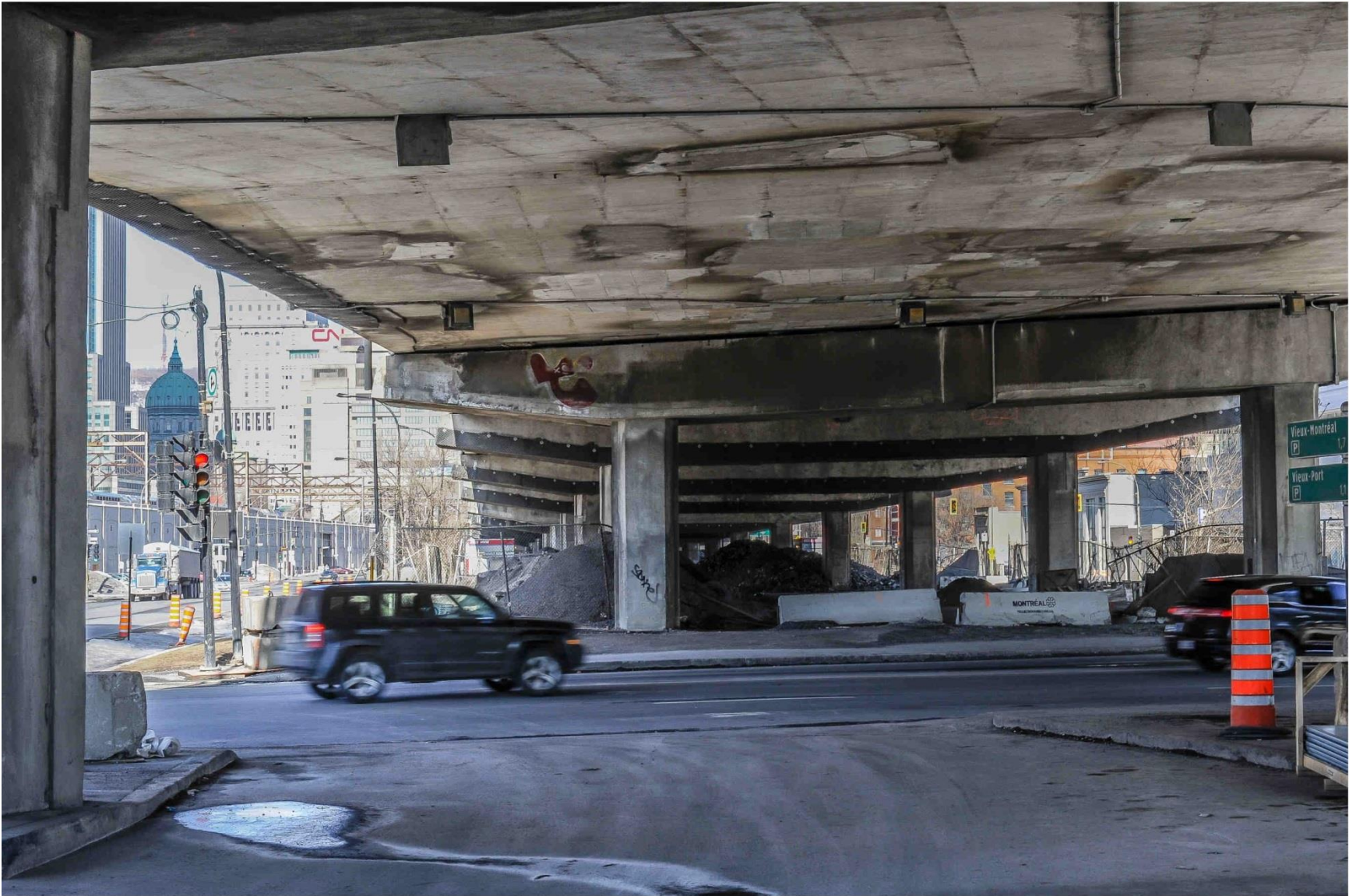
Legend

Bonaventure 3A: View from the median area looking north, 2014

Bonaventure 3B: View from the median area looking north, 2017

Bonaventure 4A: View from the median area looking south, 2014

Bonaventure 4B: View from the median area looking south, 2017



Bonaventure 3A: View from the median area looking north, 2014



Bonaventure 3B: View from the median area looking north, 2017



Bonaventure 4A: View from the median area looking south, 2014



Bonaventure 4B: View from the median area looking south, 2017